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ABSTRACT

A study was done of the characteristics of the non-traditional students enrolled at the University of Ottawa between 1981 and 1986. Data for the study were obtained from the University of Ottawa databases during the 6-year period. For the study a person 25 years or older or a person who had not undertaken formal education for a minimum of 2 full years was defined as a non-traditional student. Each year close to 20 percent (nearly 900) of new students enrolling at the university were non-traditional students. The mean age of these students was 31 years, 11.5 years older than the mean age of traditional students. Female non-traditional students consistently outnumbered male non-traditional students by almost two to one. Students came from Ontario (77 percent), Quebec (19 percent), other provinces or territories (2 percent), and from other countries (the remainder). English was the mother tongue for 45 percent in 1981 rising to 52 percent in 1986 while French was the first language for 46 percent in 1981 and 40 percent in 1986. A majority of non-traditional students were full-time students and the percentage increased each year, from 50 percent in 1981 to 57 percent in 1986. Tables showing enrollment projections are included. Appendixes present figures and tables listing definitions of "non-traditional" students and additional detail supporting the study's findings. (Contains 50 references.) (JB)

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UNIVERSITÉ D'OTTAWA UNIVERSITY OF OTTAWA

NON-TRADITIONAL STUDENTS AT THE UNIVERSITY OF OTTAWA:

PROFILE, PROGRAMMES, AND PROJECTIONS OF ENROLLMENT.

BY

KEITH ALLAN NOBLE

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A REPORT PREPARED AS A COURSE REQUIREMENT FOR THE PH.D. DEGREE FROM THE EDUCATIONAL STUDIES SECTION, FACULTY OF EDUCATION, UNIVERSITY OF OTTAWA, ONTARIO, CANADA.

JULY 1, 1987

EXECUTIVE SUMMARY

For this study, a person 25 years of age or older, or a person who has not undertaken formal education for a minimum of two full years, is defined as a non-traditional student. The study is based on 1981-1986 data related to new baccalaureate level students at the University of Ottawa, in the province of Ontario, Canada.

Each year, close to 20% [900] of the new students enrolling at the university were non-traditional students. The mean age of these students was 31 years, which made them 11.5 years older than the mean age of traditional students. A maximum age of 73 was recorded. Female non-traditional students consistently outnumbered male non-traditional students by almost two to one.

Ontario was home for 77%, Québec was home for 19%, other province or territory was home for 2%, and the remainder indicated another country. These percentages did not change significantly from 1981 to 1986.

English was the mother tongue for 45% in 1981 rising to 52% in 1986, whilst French was for 46% in 1981 falling to 40% in 1986. The other languages classification remained consistently around 8%.

The majority of non-traditional students were full-time students, and the percentage increased each year, from 50% in 1981 to 57% in 1986. Overall, arts then administration were the more popular programmes for non-traditional students. Minor programme differences exist between part-time and full-time, and female and male non-traditional students.

Ratio and polynomial model projections were calculated, reflecting a slight increase in non-traditional student enrollment. However, for the six year study period, actual enrollment was almost constant. Note that a number of articles in the literature [United States] suggest that the enrollment demand related to non-traditional students may not increase. Which raises the question of supply.

Because of their life and work experiences, non-traditional students are different from traditional students. They have different educational needs and goals. To ensure the university is cognizant of these differences, research into the congruence between university goals and non-traditional student goals is recommended.

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PROLOGUE

The primary purpose of the internship was a study, with theoretical and practical components, in the discipline of educational administration. To achieve this end, preliminary discussions were held at the University of Ottawa and at York University during the Fall semester 1986. During these discussions, information on the subject area was gathered from officials of Institutional Research [University of Ottawa] and Management Information and Planning [York University]. The final consensus was to delimit the study to the non-traditional student [NTS] at the University of Ottawa.

BACKGROUND

As the "baby boom" generation matures and passes beyond the traditional higher education years, the resultant decline in university enrollment will be, according to Clark, Devereaux, and Zsigmond (1979:80-83), filled by NTSs. And the Council of Ontario Universities believes that there will be an increased "demand for advanced education" from the general population (Gunn, 1983:vi).

Non-traditional students are changing Canadian universities (Manders, 1986; Paquet, 1987; Waxman, 1986). Their presence is prompting administrators to reconsider their perspective on who undertakes university level studies, how student attendance patterns differ, what

programmes of study and student services are required, and what future NTS enrollments might be. The fact that the segment of the population from which NTSs come is growing in size, can only raise the potential impact of this change. And as a result, a change in the traditional concept of "university" is inevitable..

NON-TRADITIONAL STUDENT

Nowhere can total agreement be found on how non-traditional student or learner should be defined (or spelt). The literature contains many definitions, each having their own parameters. Age, enrollment status [whether part-time or full-time], ethnicity, etc., have all been used as definitions [Appendix A]. Obviously each definition is accurate and acceptable in its own context. Perhaps a more significant difference, yet one less obvious within these definitions, is the choice of nouns that non-traditional qualifies; that is, "learner" or "student." The difference between learner and student can be profound. To andragogical educators these two phrases are a telling commentary. They clearly reflect the attitudes of educators toward the learner/student, and the type of environment in which education takes place.

Although collectively and individually, non-traditional learners may not be different from NTSs, the words used to qualify them succinctly describes the underlying educational philosophy. To the likes of Malcolm Knowles, the North American father of adult education, student

is equated with pedagogical "teaching" principles, whereas learner is associated with andragogical "learning" principles. With the former approach, educational emphasis is placed on the teacher, and it is assumed and accepted that the student remains passive during the educational process. This conflicts with the latter approach where the learner is the centre of the educational process.

Learners are intimately involved with their education. They play an active part in the setting of learning objectives, the determination of subject material, the method of professor-learner interaction, and the evaluation of what has been learnt. Simply put, learners have the desire and a degree of ability to exercise control over their learning.

For the student the educational scenario is different. Here the process is one of top-down teaching. Development of an independent self-concept by the student is not usually evident; students may not have any significant life experience to draw upon; a readiness to learn may not be visible in the student, or if it does exist it may not be catered to by the professor; the orientation of the education may be subject centred and not centred around the actual needs of the student; and, the student may not reflect, or be encouraged to develop, internal motivation. Generally as group, learners or NTSs, have a strong sense of self-direction; a large repertoire of life-experience to call upon; a high level of motivation which they use to acquire knowledge important to their educational needs.

Although presented here in their extreme forms, the arguments for the dichotomy are well presented in the literature (Brookfield, 1986; Cross, 1984; Knowles, 1978). From an andragogical perspective, learner and student are dissimilar, and the educational milieu associated with each reflects markedly different educational philosophies and practices.

DEFINITION

Traditional university entrants enroll directly from high school at approximately 18-20 years of age. They go from the care of parents or guardians in their home to the care of adults at the university. The university plays a major part in their personal development and socialization, and many authors have written on this semi-parental role which universities fulfill (Carter, 1983; Rootman, 1972; Tight, 1987). Therefore, to cover both situations [age of entry and parental control] the following definition was used for data collection purposes:

A person 25 years of age or older, or a person who has not undertaken formal education for a minimum of two full years, and who enrolls in a university baccalaureate level programme is a non-traditional student.

Twenty-five years of age was considered the acceptable minimum age for defining the NTS; the two year absence from formal education was added to include individuals who had broken the direct entry from high school route, thereby developing a more independent self concept as a result of undertaking maturation enhancing activities [e.g., leaving parents' home, marrying, raising a family, travelling, working, etc.].

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PROFILE

Academic planners are beginning to take the NTS seriously. If these students were previoulsy relegated to the educational etceteras they may soon be having their day. As Cross and McCartan (1984:6) have pointed out in their recent higher education report, "the demographic shift to an older population is placing the baby boom in the age of greatest adult learning activity..." This expanding segment of the general population has resulted in administrators in Canadian universities [and most universities in other Western countries] becoming quickly familiar with NTSs on the campus. The presence of these NTSs has, and will continue to, change the traditional university student profile.

ONTARIO SITUATION

In the province of Ontario, from where the majority of University of Ottawa students are drawn, the population relevant to the definition of a NTS is on the rise. From 1971 to 1981 the Ontario population 25 years of age or older increased by 25% (Statistics Canada, 1982; 1973). At the same time, there has been a decline in the population of those under the age of 25, the age range from which universities have traditionally drawn their students. This demographic difference is not peculiar to Ontario or Canada. Similar circumstances have been reported by Knights and MacDonald (1982) in Australia, by Elsey (1982) in the United Kingdom, and by Iovacchini et al. in the United States (1985).

An interesting and certainly relevant characteristic of this large group is their interest in furthering their education. As a result of broader educational opportunities over the last few decades, this group is better educated than earlier generations. And one consequence of this is the inclination toward and acceptance of more education. This group is a large and increasing consumer of educational services. Cross (1979) a prominent writer on adult education research and theory, equates the process of learning with that of an addictive drug, to which the learner becomes habituated.

In the literature related to NTSs one point appears repeatedly: the total number of female students is increasing in relation to the number of male students. This point is made in several journals (King, 1985; Solomon and Gordon, 1981; Brodzinski, 1980). Clearly female participation rates are higher than those of males. Differences in learning needs between the sexes are also evident (Carp, 1984; Nayman and Patten, 1980).

One component of any student profile, and particularly in Canada, is that of mother tongue ["first language spoken at home"]. As a very significant demographic descriptor, language is infrequently mentioned in Canadian literature related to the NTS. One exception is a recent and thorough study which describes the situation of Franco-Ontarians as it relates to continuing education in the province by (Wright et al., 1986:40-44).

PROFILE DATA

Data was collected at the University of Ottawa. This university is a bilingual institution situated in eastern Ontario on the Québec border. In 1986 it offered 124 programmes in French, 180 programmes in English, and 38 programmes partly in French. For the same year the enrollment was 11,415 full-time and 6,411 part-time baccalaureate level students.

Working with the definition of NTS [older than 25 or out of school for a minimum of two years], a computer programme was written to access existing university data bases [Appendix B]. First time student enrollment data was collected for a period of six years from 1981-1986. Three areas were excluded because of restrictive entry requirements, law, medicine, and in-service teacher education.

From the data collected the number of NTSs enrolling at the university has remained almost constant during the six-year sample period. From a low of 824 in 1982, to a high of 952 in 1985, the mean is 887, which constitutes 18.75% of the total number of students enrolling in a baccalaureate degree programme. For the most recent year 1986, the percentage is 19.06%, which is slightly higher than the six year mean. No enrollment trend or pattern is apparent. In overall numbers the total [non-traditional and traditional students] enrollment figures are also constant without any trend or pattern. The total annual enrollment mean is 4,727 with a small range of 353 [Table 1].

The profile component permanent residence has four classifications: Ontario, Québec, other Canadian province or territory, and other country. Using means for the six year sample period, NTSs indicated the following overall means for the four classifications: 77.65% Ontario, 19.41% Québec, 1.92% another province/territory, 1.02% another country. Over the six year sample period, no major change has taken place with respect to where NTSs reside permanently. One minor change, due to rising tuition fees for foreign students, is the decreasing number of NTSs indicating other country as their permanent residence [Table 2].

When looking at age, the age range for NTSs is 56 years, from 17 to 73 years of age. The largest grouping lies in the 25 to 45 years of age range. For the six year sample period the NTS mean age is 31.0 and the individual year means are as follows: 1981, 1984, 1985, 1986 - 31 years; 1982, 1983 - 30 years. For the traditional student sample the mean age was 19.5 years [Table 3].

English, French, and "other" language were the three languages [mother tongues] used to code data. This break down produced the following. Of the enrolling NTSs in 1986, 51.63% stated English, 40.02% stated French, and other languages constituted 8.34%. These other languages were not classified by type. For enrolling traditional students in 1986 the differences were similar but not as pronounced. Here English was slightly more common at 48.54%, than the French at 43.31%. The other languages classification remained almost the same at 8.15% [Table 4].

With respect to sex of enrolling NTSs during the entire six-year sample period, there are two important pieces of data to note. Firstly, for females the mean is 557 [61.22%], for males the mean is 343 [38.78%]. The number of female NTSs enrolling has been higher than the number of males for every year of the sample. Secondly, a similar pattern for enrolling traditional students is apparent. Here the means are 2,074 [54.00%] for females, and 1,767 [46.00%] for males [Table 5].

To summarize: data was collected on 5,317 NTSs entering the University of Ottawa from 1981-1986; this data was collected under five major profile components: number, residence, age, language, and sex. Corresponding data was collected for the same years on 28,362 traditional students.

NON-TRADITIONAL STUDENT PROFILE

From the data collected and displayed in the tables a composite NTS can be visualized. She, the odds are two to one that the student is a female, is a member of a group of students that constitute approximately 20% of all the new baccalaureate students enrolling each year. Her mean age is 31, her mother tongue is probably English although the chances are almost equal that it is French, and it is most likely that she lives permanently in Ontario. Apart from age this NTS profile does not differ drastically from the profile of the traditional student enrolling at the University of Ottawa.

PROGRAMMES

With respect to the programmes of study undertaken by baccalaureate students, three points are relevant: the programme type [e.g., social science], attendance [full-time or part-time], and intellectual application. On the latter point Kasworm (1980) has described the clear distinctions between older and younger students in the way these two groups approach their undergraduate studies. Existing data was not available on intellectual application, and for this report only the first two points will be considered.

PROGRAMME TYPES

Popular perception has it that older learners attend university on a part-time basis. While generally this may be the case, it is not the situation at the University of Ottawa. As the tables following show, the majority of NTSs at the university are full-time students. The data collected on this topic breaks programme type into seven classifications: administration, arts, education, engineering, health sciences, science, and social science. Note that three groups of students do not appear in this data: law, medicine, and in-service teacher education. In addition to part-time and full-time and separation by sex, three language groupings were used: English, French, and all other languages. This produced a programme breakdown with 12 [2x2x3] subcomponents.

PROGRAMME COMPARISONS

When comparing types of programmmes taken by NTSs and traditional students obvious similarities and differences become apparent. Of the seven programmes identified, arts is the most popular for both groups of students. For the six year sample period both NTS and traditional student groups overwhelmingly selected an arts programme. With a few exceptions, administration was the second most popular programme for NTSs, whereas social science was the second most popular programme for traditional students. For the remaining five programmes there is no clear pattern for NTSs which is markedly different from the traditional group where the the data is almost consistent for the entire six year sample. Since the B.Ed. programme is only available to students already holding a degree, education for NTSs is fourth in popularity, whereas for traditional students education is consistently seventh [Table 6].

Difference also exist between female and male full-time NTSs. For females the most popular programme seems to be education, whereas for males the choice is clearly arts. For both sexes social science was the third most popular programme. Engineering was the least popular type of programme for females, and for males it was health science [Table 7].

Looking at the difference between the sexes for part-time NTSs the results are similar and different. For females the two most popular programmes are arts and administration in that order, but for males the

order is reversed, administration then arts. For the six year sample period, education shows no part-time students, as the programme is only offered on a full-time basis. In engineering there were no female part-time NTSs in the entire sample period [Table 8].

Breaking down the NTS data by attendance, language, and sex resulted in a table with 12 subcomponents. The increase in full-time NTS attendance is clearly evident, as is the increase in female [the only exception is part-time French] and decrease in male attendance [Table 9].

A clear picture of the increase in full-time attendance can be seen when comparing percentages for the period 1981-1986. In 1981 students attending their programme of study on a full-time basis, made up 50.08% of the NTS body. By 1986, this figure had increased to 57.12% of the NTS body [Table 10].

PART-TIME / FULL-TIME

Some distinct differences between part-time and full-time attendance, and between female and male programme preferences are obvious. The fact that the majority of NTSs at the University of Ottawa are full-time and not part-time, brings into question a belief frequently expressed in the literature: the belief that part-time students are a "new" majority on the university campus (Brodzinski, 1980:1-6; Campbell, 1984). This certainly is not the case at the University of Ottawa.

PROJECTIONS OF ENROLLMENT

When considering student enrollment projections there are two caveats: 1. Enrollment projections are not predictions; and 2. Enrollment projection can be a very subjective process. The concept is appealing to administrators desirous to determine what future enrollment patterns or trends may develop. But at best, enrollment projection only offers an indication of future enrollment direction, particularly when as it is in this case, based on data from a single institution. The credibility of projections become tenuous as the projection moves from the short-range to the long-range, as does projections turning points .

In Canada, as elsewhere, enrollment projection is an accepted technique to arrive at data which can be used for institutional management purposes [e.g., budgeting]. Projections also provide a baseline from which institutional planners can create scenarios around which policy and institutional priorities can be developed. Without an enrollment projection as a baseline, administrators have no conceptual entrée to future developments and planning within their institutions.

Over time, enrollment projection techniques have been refined. Comparisons between predicted figures and actual figures have allowed those working in this area to develop a number of techniques to suit differing circumstances. Wing (1974:14) has grouped these techniques under four broad classes as follows:

Causal Models: Techniques and models which produce forecasts based on historical relationships between enrollment and other parameters and variables [e.g., high school graduates].

Curve Fitting: Techniques and models which produce forecasts primarily on historical enrollment data.

Judgements: Those elements and aspects of enrollment projecting procedures based on a personal judgement rather than some quantitative technique or procedure.

Surveys: Techniques based on intention surveys of potential students, producing projections or suggesting adjustments to projections developed with other techniques.

Within the related literature there is a conventional notation used in projection techniques. They are as follows:

t = year

$\hat{E}$ = estimated enrollment

E = actual, historical enrollment

$\hat{a}$, $\hat{b}$, $\hat{c}$, $\hat{d}$, $\hat{e}$ = estimates of the above parameters

a, b, c, d, e = actual parameters in projection techniques and models

Numbers indicating actual and projected enrollment are written differently. Actual enrollment numbers are shown as whole numbers [32,416], whereas projected enrollment numbers are expressed to the nearest tenth [37,217.6].

In this study two enrollment projection techniques were used. A polynomial model was selected from the curve-fitting group, and the ratio method from the causal models group. These techniques were selected on the basis of available or historical data [actual enrollment figures 1981-1986]; that each is considered to be acceptably "accurate" and consistent; the polynomial model will reflect trends and patterns and not simply a constant curve; the ratio method belongs to a different group as indicated, which permitted a comparison with the polynomial model; the additional variable [demographic data] was readily available.

It is a common practice when constructing enrollment projections to prepare three projections: a maximum upper projection, a minimum lower projection, and a most likely middle projection. In accordance with this tradition, six projections were made. To achieve this, the respective data related to the three high years was split from the data related to the three low years. This permitted maximum and minimum projections, and the mean was used for the most likely projection.

The data used for the projections consisted of historical enrollment data for non-traditional students at the University of Ottawa for the years 1981-1986; plus, data from Statistics Canada for the years 1981-2000 for all Canadians 25 years of age and over. The fact that the Statistics Canada data are also projected data, highlights the caution that needs to be exercised when interpreting the final projections recorded in this report.

POLYNOMIAL MODEL PROJECTIONS

As indicated, this model was selected because of its power to accommodate and reflect data that is not constant. Whilst other curve-fitting models require and produce constant data, and subsequently produce constant curves, the polynomial model's sophistication permits the expression of trends and patterns if they exist [Tables 11, and 12]. The one limitation with the model is that there must be as many historical data points as there are projected parameters. In the case at hand, there are six pieces of historical data, which allows, with some degree of accuracy, six enrollment projections. The projection was continued past the sixth point [1992] for comparitive purposes with the ratio model projections [Figure 1].

From Wing (1974:25-26) the equation for the first-order polynomial model [there are second-order and higher-order polynomial models] is:

$$E = \hat{a} + \hat{b}t$$

$\hat{a}$, $\hat{b}$ = unknown parameters
t = time.

$$\hat{a} = \frac{SE_i - \hat{b}St_i}{n}$$

S = Sum
n = 6.

$$\hat{b} = \frac{n.S[E_i t_i] - [SE_i][St_i]}{n.St_i^{\,2} - [St_i]^2}$$

RATIO METHOD PROJECTIONS

Enrollment projections based on this method use a ratio between actual/historical data and one other known variable. For this research the ratio beween the actual enrollment data for the years 1981-1986 and number of Canadians 25 years of age or older during the same time period was used.

The decision to use population age as the second variable was based on: the availability of the data; the fact that age was incorporated in the definition of NTS; and, that this age group covers the majority of the potential NTSs that will enroll at the University of Ottawa.

Specifically, the ratio between the number of NTSs and the number of Canadians 25 years of age and older, was calculated for the six years 1981-1986. The mean ratio was then determined. This mean ratio was assumed to apply for all years after 1986. And having the projected population for the subsequent years, 1987-2000, it was possible to derive the projected NTS enrollment [Tables 13 and 14].

As was undertaken with the polynomial model, projections were made to the year 2000. And similarly, a minimum, a most likely, and a maximum projection were calculated. To arrive at these projections, the same technique of splitting the three low ratios [1981, 1982, 1986] from the three high ratios [1983, 1984, 1985], was used [Figure 2].

COMPARISON OF PROJECTIONS

Looking at the polynomial model data, no unusual results can be noted. The results are what would be expected from the model. Of course, it is unlikely that the projections will stand the test of time, particularly after the first few years of the next decade.

On this point, Wing (1974:30) states that "the number of data points always must be at least [his emphasis] as large as the number of parameters to be estimated..." A research study of enrollment projections based on previous enrollment by Alspaugh (1981), supported this. Alspaugh concluded that a minimum of "six to eight years of base data are needed for projecting future enrollments from past enrollment." Therefore, with respect to NTSs at the University of Ottawa, and enrollment projections in 1987 based on data from 1981-1986, projections past the early 1990s are of questionable value.

For enrollment projections based on the ratio technique another limitation comes into effect. Statistics Canada (1985) projections of the Canadian population show that the percent of the population 25 years of age and older will peak in 1991. The percentage rises to a high of 57.84% in this year and declines thereafter to the year 2000. This reveals that the segment of the Canadian population from which the majority of NTSs come, is not ever increasing. As a pool of potential students it is finite.

Comparing the polynomial model and ratio mean projections of enrollment similar trends are noted [Figure 3]. Both projections are roughly parallel. Of the two projections the polynomial model exhibits the highest numbers. For all years, the polynomial model projects an enrollment approximately 70 students higher than the ratio projection. Part of this discrepancy would certainly be the result of reductions in the historical data 1981-1986. These reductions in each year of the data were made to reflect only those NTSs who were 25 years and over. All NTSs under this age were subtracted from each year. As the ratios were derived from population data for those 25 years and older, the historical data was adjusted accordingly.

Certainly the number of NTSs will not increase indefinitely. Both projections have limitations, but it would seem reasonable to expect that both of these projections have some utility until at least 1991 or 1992. They offer an acceptable and reasonable degree of "accuracy."

Stressing once again that projections are not predictions, and that many variables will exert influence on projections, all projected figures have a credibility cut-off point. Examples of these supply and demand variables include demographic changes, school closures, provincial funding of universities etc.. Reiterating that enrollment projections can have a subjective component, it must be understood the process necessitates that researchers and planners appreciate the impact of the widest range of these kind of variables.

EPILOGUE

It is apparent from the data collected and recorded in this study, that the NTSs at the University of Ottawa are similar to other NTSs that are well described in the literature. Although no serious situation exists, there are three findings worthy of further consideration.

The first is age. With a mean age of 31 years the NTS is 11.5 years older than the average traditional student. This age difference in itself is not significant; but what is profoundly significant is the life experience that the NTS has acquired during this time period. Non-traditional students go voluntarily to the university with different expectations, motivations, concepts of self, objectives, and needs from those of the traditional student (Apt, 1978; Knox 1980; Olski, 1980; Wolfgang and Darling, 1981).

In their lengthy report Weathersby and Tarule (1980:3) clarify many of the implications of adult development for higher education and they write: "Adult students, taken as a group, represent more diversity in life situations, goals, previous experience, skills and intellectual capacities and styles of learning than most institutions are accustomed to acknowledging or planning for."

The second important finding concerns programmes of study. Programme related data clearly shows that different programmes of study appeal to

NTSs and traditional students, and that part-time NTSs prefer different programmes to full-time NTSs. The following questions are prompted: Why do NTSs prefer arts, administration, social science, education, science, health science, then engineering, whereas for traditional students the order is arts, social science, science, administration, engineering, health science, then education? Can it be explained by simple enrollment, or are there more meaningful reasons? Why do full-time female NTSs show an education, arts, social science preferred course order, when their part-time counterparts demonstrate an arts, administration, social science course order preference?

Further research may be warranted. It could be very helpful in arriving at answers to these questions, and thereby assisting those involved with programme planning. Pragmatic considerations are important when NTSs make their programme decisions (Kegel, 1977), as are their personal needs (Cross, 1984; Paquet, 1987; Rawlins, 1979).

Future enrollment is the third important consideration. Large potential increases in NTS enrollment have been predicted by some researchers in the United States (Crimmins and Riddler, 1985) and in the United Kingdom and Europe (Scott, 1985). However, other researchers express dissimilar views. Both Centra (1980) and Glenny (1980) see little increase in NTS enrollment. Although in Canada, the Council of Ontario Universities sees an increasing demand for higher education (Gunn, 1983), actual increases may be more related to the supply of enrollment opportunities.

From 1981-1986, the data indicates that the total number of NTSs has remained almost constant. Additionally, the number of full-time NTSs, special students in their own right according to Glass and Harshberger (1974), has increased. Both are interesting findings. Although the number of part-time NTSs is decreasing, Batt (1979) believes they merit the attention of university administrators.

Perhaps the most relevant issue which has a direct influence on the findings discussed, is the issue of how NTSs perceive the University of Ottawa and its goals. As approximately 20% of those enrolling are now NTSs, this perception undoubtedly influences the type of NTS, the type of programme undertaken, and the final enrollment. Cohen (1980:23-30), Payette (1980:31-38), and Weil (1986), describe some of the perceptions [rejection, insensitivity] and problems [dissonance, schedules] faced by NTSs. Conversely, the perceptions of university employees toward NTSs are also critical as demonstrated by Nidiffer and Moore (1985).

Logically, a better understanding of how the NTSs perceive the goals of the university would be helpful to administrators (Williams, 1984), and academic planners (Munger and Priest, 1979). Assessing the congruence or discrepancy between institutional and NTS goals would provide telling data. Data that would improve the level of knowledge on the profile of NTS, the programmes they choose, and projections of enrollment. Compiling and acting on this knowledge, the university could enhance its national and international reputation and the quality of its graduates.

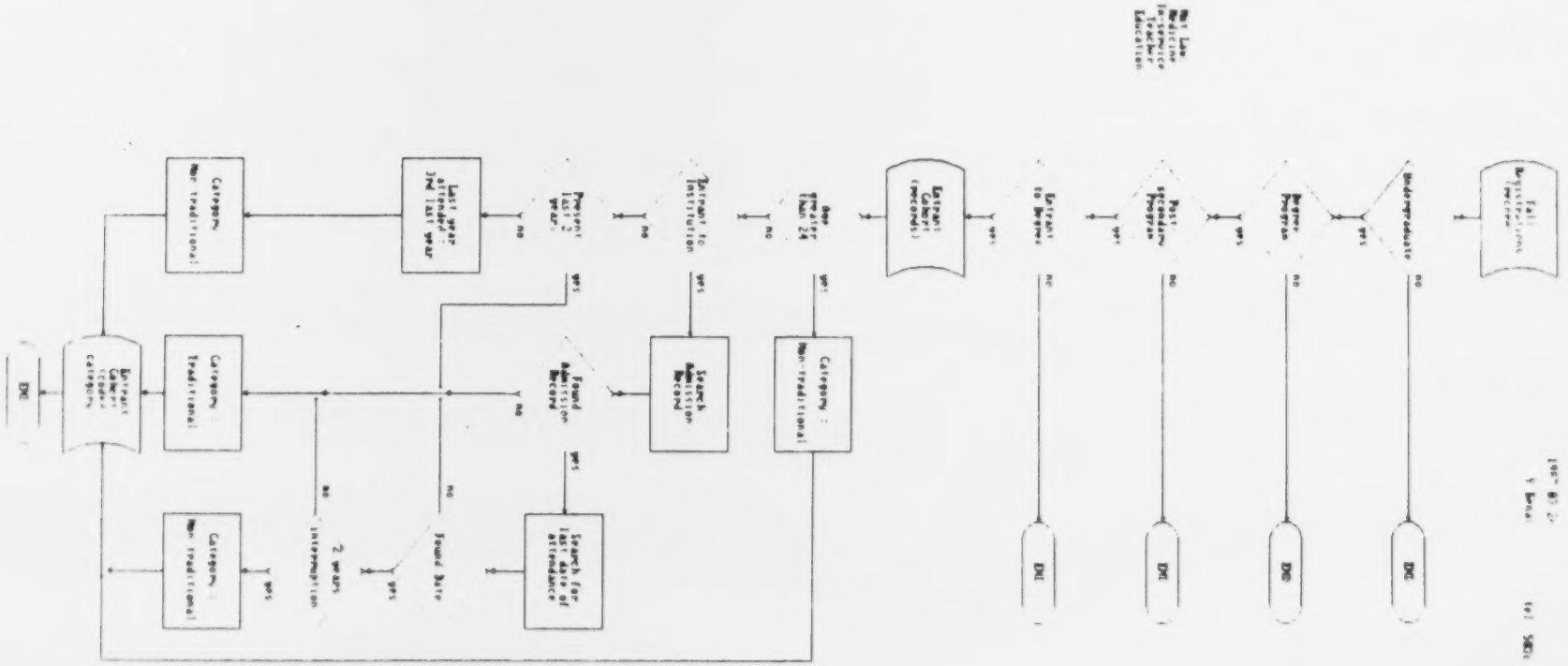
APPENDIX A

DEFINITIONS AND COMMENTS RELATED TO "NON-TRADITIONAL" STUDENTS/LEARNERS

REFERENCE	DEFINITION/COMMENT	COUNTRY
BEAN & METZNER (1985:488)	"IT IS NECESSARY, BUT NOT SUFFICIENT, FOR A NON-TRADITIONAL STUDENT TO HAVE AT LEAST ONE OF THREE CHARACTERISTICS (PART-TIME, COMMUTER, OLDER THAN 24)."	[UNITED STATES]
CROSS & ZUSMAN (1977:1)	"...COMMON USAGE DEFINES NON-TRADITIONAL BROADLY AS ADULT PART-TIME LEARNERS."	[UNITED STATES]
HUGHES (1983:52)	"...THE CUT OFF HAS RANGED FROM 22 YEARS...TO 30... OTHER FACTORS HAVE ALSO SERVED AS VARIABLES, SUCH AS MARRIED/UNMARRIED, COMMUTER/RESIDENT, AND PART-TIME/FULL-TIME...	[UNITED STATES]
KEGEL (1977:10)	"THE HOTTEST ITEM IN COLLEGES AND UNIVERSITIES TODAY IS THE SO-CALLED ADULT STUDENT, VARIOUSLY LABELED 'OLDER' OR 'NON TRADITIONAL.'"	[UNITED STATES]
KNIGHTS & MCDONALD (1982:237)	"IF THE TERM 'MATURE AGE STUDENT' IS TAKEN TO DESCRIBE ANY STUDENT WHO ENTERS ANY UNIVERSITY LATER THAN THE TRADITIONAL SCHOOL-LEAVING AGE..."	[AUSTRALIA]
MUNGER & PRIEST (1979:19)	"...NON-TRADITIONAL STUDENTS ARE THOSE OVER 24 YEARS OF AGE WITH INTERESTS IN EITHER CREDIT OR NONCREDIT POSTSECONDERY EDUCATION OPPORTUNITIES (DEGREE/NON-DEGREE)."	[UNITED KINGDOM]
STALFORD (1979:111)	"WHEN APPLIED TO STUDENT POPULATIONS 'NON-TRADITIONAL' GENERALLY REFERS TO PREVIOUSLY UNDERSERVED GROUPS, SUCH AS ETHNIC OR RACIAL MINORITIES OF TRADITIONAL COLLEGE-ATTENDING AGE. OR IT MIGHT REFER TO A WIDE RANGE OF ADULT POPULATIONS, INCLUDING HOUSEWIVES AND OLDER PERSONS RETURNING TO SCHOOL IN INCREASING NUMBERS."	[UNITED STATES]
WEIL (1986:220)	"NON-TRADITIONAL LEARNERS ARE DEFINED HERE IN TERMS OF AGE (25+)..."	[UNITED KINGDOM]

APPENDIX B

COMPUTER PROGRAMME



BEST COPY AVAILABLE

FIGURE 1

POLYNOMIAL MODEL PROJECTIONS OF ENROLLMENT 1987-2000

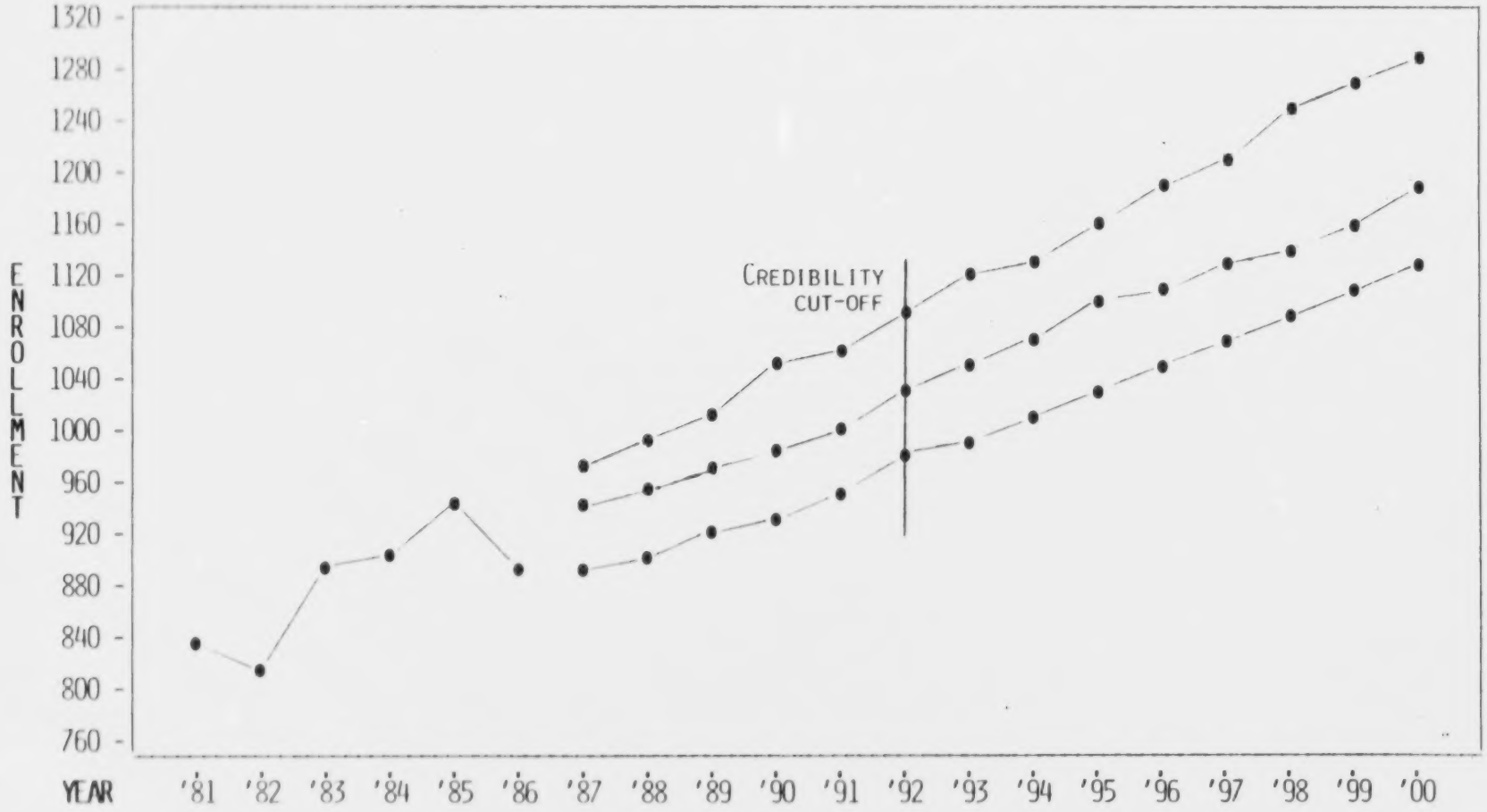


FIGURE 2

RATIO PROJECTIONS OF ENROLLMENT 1987-2000

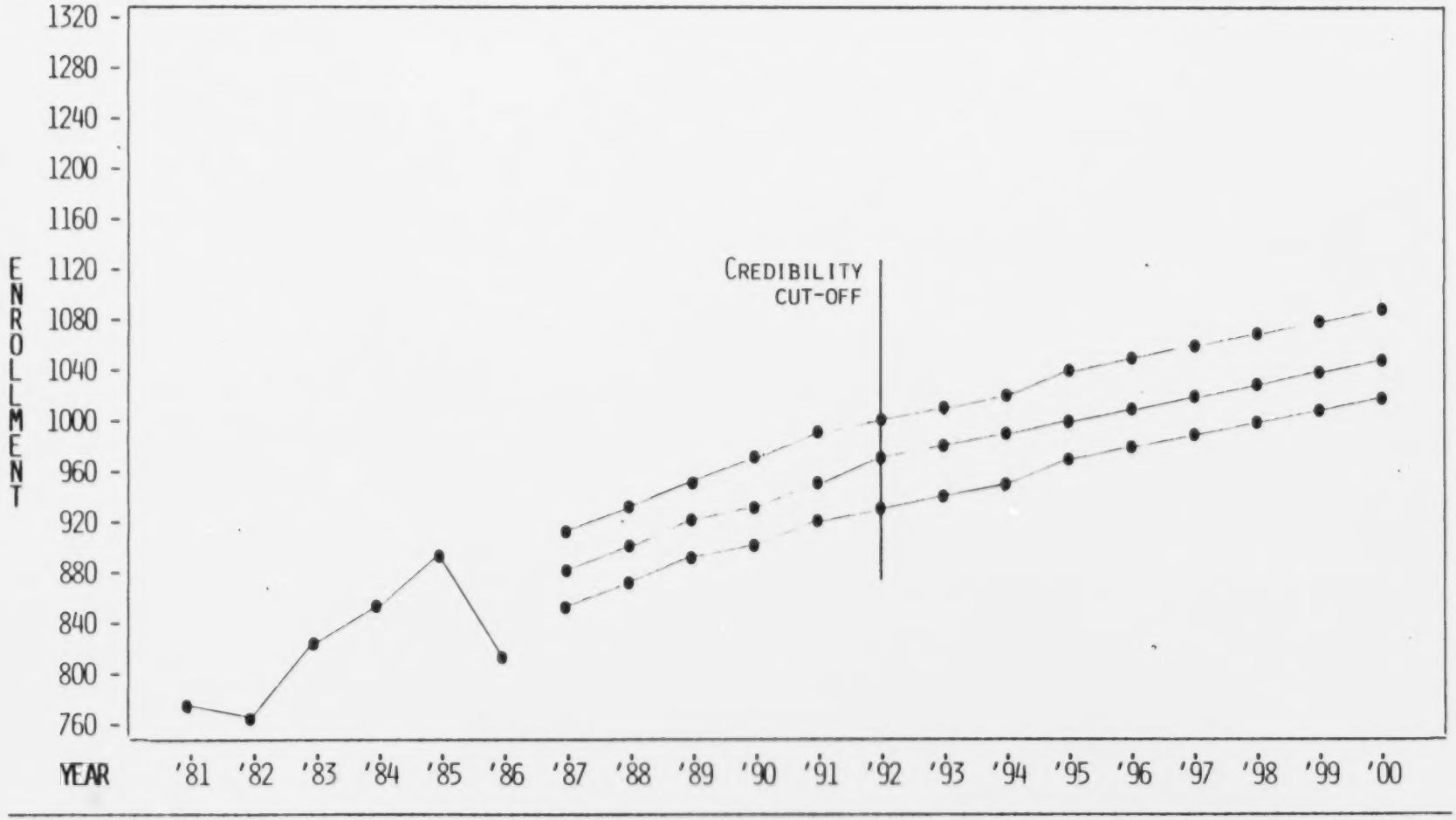


FIGURE 3

POLYNOMIAL MODEL AND RATIO MEAN PROJECTIONS OF ENROLLMENT 1987-2000

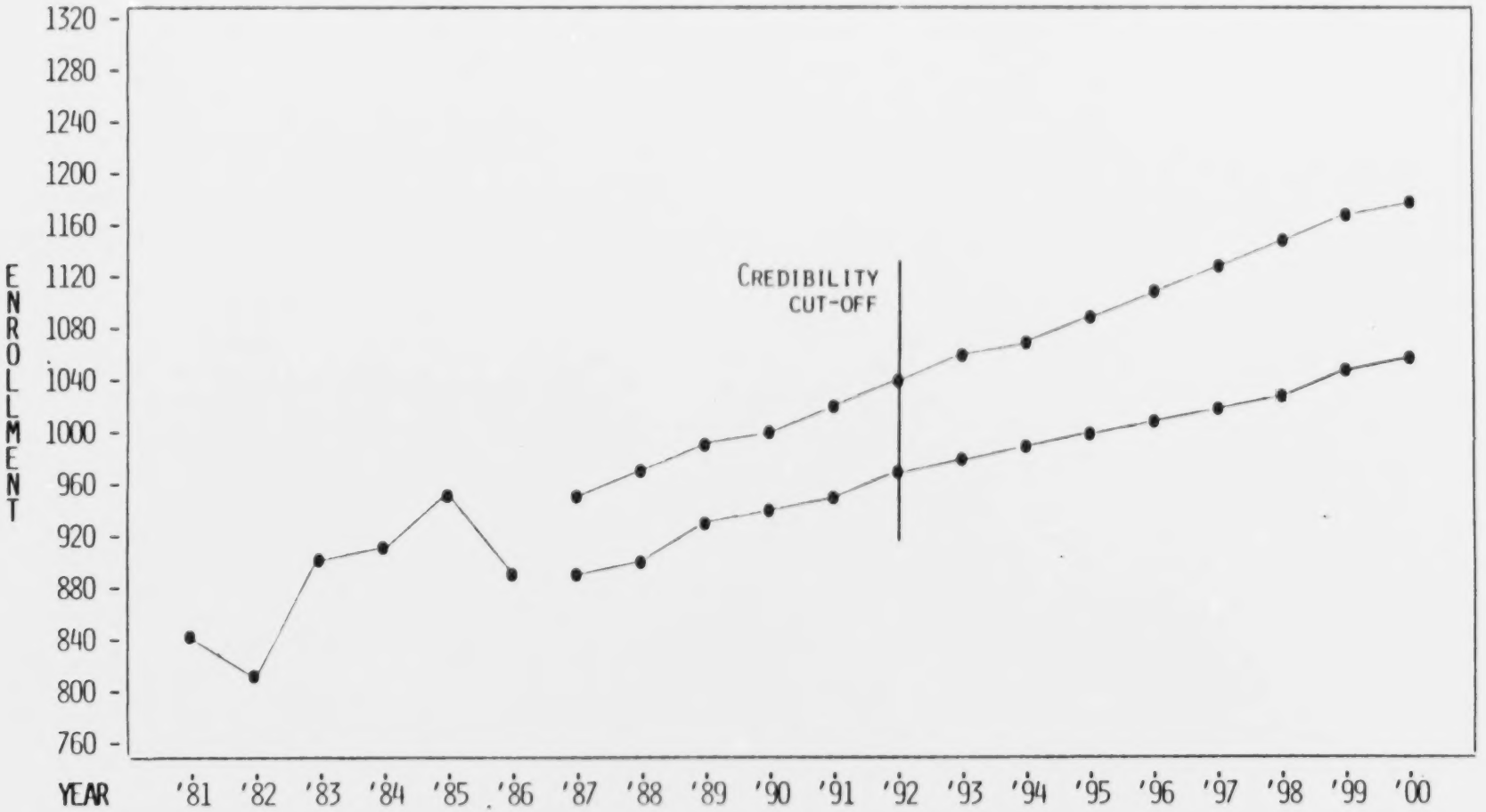


TABLE 1

NUMBER OF NON-TRADITIONAL STUDENTS AND TRADITIONAL STUDENTS (NEW ENROLLMENTS, FIRST YEAR STUDENTS)

STUDENT TYPE	1981	1982	1983	1984	1985	1986	TOTAL
NON-TRADITIONAL STUDENT	839/ 18.15	824/ 18.02	901/ 18.37	914/ 18.56	952/ 20.32	887/ 19.06	5317/ 18.75
TRADITIONAL STUDENT	3783/ 81.85	3748/ 81.98	4004/ 81.63	4011/ 81.44	3733/ 79.68	3766/ 80.93	23045/ 81.25
TOTAL	**4622/100.00**	**4572/100.00**	**4905/100.00**	**4925/100.00**	**4685/100.00**	**4653/100.00**	**28362/100.00**

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TABLE 2

PERMANENT RESIDENCE OF NON-TRADITIONAL STUDENTS AND TRADITIONAL STUDENTS

RESIDENCE	1981	1982	1983	1984	1985	1986	MEANS
ONTARIO NTS	649/ 77.35	631/ 76.58	716/ 79.47	705/ 77.13	745/ 78.26	682/ 76.88	688/ 77.65
QUÉBEC NTS	163/ 19.43	163/ 19.78	163/ 18.09	178/ 19.47	190/ 19.96	178/ 20.07	172/ 19.41
OTHER PROV OR TERR NTS	9/ 1.07	17/ 2.06	14/ 1.55	24/ 2.63	12/ 1.26	24/ 2.71	17/ 1.92
OTHER COUNTRY NTS	18/ 2.15	13/ 1.58	8/ 0.89	7/ 0.77	5/ 0.53	3/ 0.34	9/ 1.02
TOTAL / % OF NTS + TS	**839/ 18.15**	**824/ 18.02**	**901/ 18.37**	**914/ 18.56**	**952/ 20.32**	**887/ 19.06**	**886/ 18.74**
ONTARIO TS	2501/ 66.11	2571/ 68.60	2835/ 70.80	2841/ 70.83	2665/ 71.39	2762/ 73.34	2696/ 70.19
QUÉBEC TS	979/ 25.88	919/ 24.52	969/ 24.20	943/ 23.51	900/ 24.11	831/ 22.07	924/ 24.04
OTHER PROV OR TERR TS	86/ 2.27	100/ 2.67	118/ 2.95	147/ 3.66	130/ 3.48	133/ 3.53	119/ 3.10
OTHER COUNTRY TS	217/ 5.74	158/ 4.22	82/ 2.05	80/ 1.99	38/ 1.02	40/ 1.06	102/ 2.67
TOTAL / % OF NTS + TS	**3783/ 81.85**	**3748/ 81.98**	**4004/ 81.63**	**4011/ 81.44**	**3733/ 79.68**	**3766/ 81.94**	**3841/ 81.26**
GRAND TOTAL	**4622/100.00**	**4572/100.00**	**4905/100.00**	**4925/100.00**	**4685/100.00**	**4653/100.00**	**4727/100.00**

TABLE 3

MEAN AGE OF NON-TRADITIONAL STUDENTS AND TRADITIONAL STUDENTS

STUDENT TYPE	1981	1982	1983	1984	1985	1986	SIX YEAR MEAN
NON-TRADITIONAL STUDENT	30.70	30.38	30.44	30.96	31.25	31.41	30.85
TRADITIONAL STUDENT	19.69	19.58	19.69	19.73	19.76	19.73	19.70
DIFFERENCE	11.01	10.80	10.75	11.23	11.49	11.68	11.15

TABLE 4

LANGUAGE (MOTHER TONGUE) OF NON-TRADITIONAL STUDENTS AND TRADITIONAL STUDENTS

LANGUAGE	1981	1982	1983	1984	1985	1986	TOTAL
ENGLISH NTS	377/ 44.93	399/ 48.42	422/ 46.84	470/ 51.42	477/ 50.10	458/ 51.63	2603/ 48.96
FRENCH NTS	385/ 45.89	334/ 40.53	401/ 44.51	373/ 40.81	391/ 41.07	355/ 40.02	2239/ 42.11
ALL OTHER LANGUAGES NTS	77/ 9.18	91/ 11.04	78/ 8.66	71/ 7.77	84/ 8.82	74/ 8.34	475/ 8.93
TOTAL	**839/100.00**	**824/100.00**	**901/100.00**	**914/100.00**	**952/100.00**	**887/100.00**	**5317/100.00**
ENGLISH TS	1571/ 41.53	1636/ 43.65	1883/ 47.03	1881/ 46.90	1771/ 47.44	1828/ 48.54	10570/ 45.87
FRENCH TS	1743/ 46.07	1733/ 46.24	1762/ 44.01	1799/ 44.85	1662/ 44.52	1631/ 43.30	10330/ 44.83
ALL OTHER LANGUAGES TS	469/ 12.40	379/ 10.11	359/ 8.97	331/ 8.25	300/ 8.04	307/ 8.15	2145/ 9.31
TOTAL	**3783/100.00**	**3748/100.00**	**4004/100.00**	**4011/100.00**	**3733/100.00**	**3766/100.00**	**23045/100.00**

TABLE 5

SEX OF NON-TRADITIONAL STUDENTS AND TRADITIONAL STUDENTS

SEX	1981	1982	1983	1984	1985	1986	TOTAL
FEMALE NON-TRAD STUDENT	477/ 56.84	492/ 49.71	554/ 61.49	579/ 63.35	601/ 63.13	557/ 62.80	3260/ 61.31
MALE NON-TRAD STUDENT	362/ 43.16	332/ 40.29	347/ 38.51	335/ 36.65	351/ 36.87	330/ 37.20	2057/ 38.69
TOTAL	**839/100.00**	**824/100.00**	**901/100.00**	**914/100.00**	**952/100.00**	**887/100.00**	**5317/100.00**
FEMALE TRAD STUDENT	1885/ 49.83	1996/ 53.26	2110/ 52.70	2157/ 53.78	2116/ 56.68	2177/ 57.81	12441/ 54.99
MALE TRAD STUDENT	1898/ 50.17	1752/ 46.74	1894/ 47.30	1854/ 46.22	1617/ 43.32	1589/ 42.19	10604/ 46.01
TOTAL	**3783/100.00**	**3748/100.00**	**4004/100.00**	**4011/100.00**	**3733/100.00**	**3766/100.00**	**23045/100.00**

TABLE 6

PROGRAMME SELECTION BY NON-TRADITIONAL AND TRADITIONAL STUDENTS

PROGRAMME	1981	1982	1983	1984	1985	1986
ADMINISTRATION NTS	2ND	2ND	3RD	2ND	2ND	3RD
ARTS NTS	1ST	1ST	1ST	1ST	1ST	1ST
EDUCATION NTS	4TH	5TH	4TH	4TH	4TH	4TH
ENGINEERING NTS	7TH	7TH	6TH	7TH	7TH	7TH
HEALTH SCIENCE NTS	6TH	6TH	5TH	6TH	5TH	5TH
SCIENCE NTS	5TH	4TH	5TH	5TH	6TH	6TH
SOCIAL SCIENCE NTS	3RD	3RD	2RD	3RD	3RD	2ND
ADMINISTRATION TS	2ND	4TH	4TH	3RD	4TH	4TH
ARTS TS	1ST	1ST	1ST	1ST	1ST	1ST
EDUCATION TS	7TH	7TH	7TH	7TH	7TH	7TH
ENGINEERING TS	5TH	5TH	5TH	5TH	5TH	5TH
HEALTH SCIENCE TS	6TH	6TH	6TH	6TH	6TH	6TH
SCIENCE TS	3RD	3RD	3RD	4TH	3RD	3RD
SOCIAL SCIENCE TS	4TH	2ND	2ND	2ND	2ND	2ND

TABLE 7

FULL-TIME PROGRAMME COMPARISON FOR NON-TRADITIONAL STUDENTS FEMALE/MALE

PROGRAMME	1981	1982	1983	1984	1985	1986
ADMINISTRATION	4TH/2ND	4TH/4TH	5TH/5TH	5TH/4TH	5TH/3RD	5TH/4TH
ARTS	1ST/1ST	1ST/1ST	2ND/1ST	2ND/1ST	2ND/1ST	2ND/1ST
EDUCATION	2ND/3RD	2ND/5TH	1ST/3RD	1ST/3RD	1ST/4TH	1ST/2ND
ENGINEERING	7TH/6TH	7TH/6TH	0/6TH	0/6TH	0/6TH	7TH/5TH
HEALTH SCIENCE	5TH/7TH	5TH/7TH	4TH/7TH	4TH/7TH	4TH/7TH	4TH/7TH
SCIENCE	6TH/5TH	6TH/2ND	6TH/4TH	6TH/5TH	6TH/2ND	6TH/6TH
SOCIAL SCIENCE	3RD/4TH	3RD/3RD	3RD/2ND	3RD/2ND	3RD/5TH	3RD/3RD

TABLE 8

PART-TIME PROGRAMME COMPARISON FOR NON-TRADITIONAL STUDENTS FEMALE/MALE

PROGRAMME	1981	1982	1983	1984	1985	1986
ADMINISTRATION	2ND/1ST	3RD/1ST	3RD/1ST	2ND/1ST	2ND/1ST	2ND/1ST
ARTS	1ST/2ND	1ST/2ND	1ST/2ND	1ST/2ND	1ST/2ND	1ST/2ND
EDUCATION*	0/0	0/0	0/0	0/0	0/0	0/0
ENGINEERING	0/4TH	0/5TH	0/5TH	0/6TH	0/0	0/5TH
HEALTH SCIENCE	4TH/5TH	4TH/5TH	4TH/6TH	4TH/4TH	4TH/5TH	4TH/6TH
SCIENCE	5TH/4TH	5TH/4TH	5TH/4TH	5TH/5TH	5TH/4TH	5TH/4TH
SOCIAL SCIENCE	3RD/3RD	2ND/3RD	2ND/3RD	3RD/3RD	3RD/3RD	3RD/3RD

*PART-TIME, NON-TRADITIONAL STUDENTS NOT ACCOMMODATED IN EDUCATION.

TABLE 9

ATTENDANCE OF NON-TRADITIONAL STUDENTS BY LANGUAGE AND SEX

ATTENDANCE, LANGUAGE & SEX	1981	1982	1983	1984	1985	1986
FULL-TIME ENGLISH FEMALE	13.11%	15.41%	17.98%	17.94%	18.59%	18.38%
FULL-TIME ENGLISH MALE	11.68%	11.89%	10.43%	10.72%	12.61%	13.53%
FULL-TIME FRENCH FEMALE	7.27%	9.47%	10.21%	11.38%	10.40%	10.48%
FULL-TIME FRENCH MALE	11.08%	9.34%	10.32%	9.52%	9.14%	9.13%
FULL TIME OTHER LANGUAGE FEMALE	2.62%	3.64%	2.11%	2.63%	2.21%	2.82%
FULL-TIME OTHER LANGUAGE MALE	3.81%	4.13%	3.55%	3.50%	3.57%	2.82%
PART-TIME ENGLISH FEMALE	13.83%	15.05%	12.43%	16.30%	13.76%	15.33%
PART-TIME ENGLISH MALE	6.32%	6.07%	5.99%	6.46%	5.15%	4.40%
PART-TIME FRENCH FEMALE	18.60%	14.20%	17.31%	13.79%	16.28%	14.00%
PART-TIME FRENCH MALE	8.94%	7.52%	6.66%	6.13%	5.25%	6.43%
PART-TIME OTHER LANGUAGE FEMALE	1.43%	1.94%	1.44%	1.31%	1.89%	1.80%
PART-TIME OTHER LANGUAGE MALE	1.31%	1.33%	1.55%	0.33%	1.12%	0.90%
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

TABLE 10

ATTENDANCE CPMPARISON OF NON-TRADITIONAL STUDENTS FULL-TIME/PART-TIME

ATTENDANCE	1981	1982	1983	1984	1985	1986
FULL-TIME NTS	50.08%	53.88%	54.61%	55.69%	56.52%	57.12%
PART-TIME NTS	49.92%	46.12%	45.39%	44.31%	43.48%	42.88%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

TABLE 11

POLYNOMIAL MODEL DATA AND CALCULATIONS

YEAR	T_I	T_I^2	E_I	$E_I T_I$	$E_I T_I^2$
1981*	1	1	839	839	839
1982*	2	4	824	1648	3296
1983**	3	9	901	2703	8109
1984**	4	16	914	3656	14624
1985**	5	25	952	4760	23800
1986*	6	36	887	5322	31932
SUM	21	91	5317	18928	82600

T = TIME
E = HISTORICAL ENROLLMENT DATA FOR NON-TRADITIONAL STUDENTS PROVIDED BY INSTITUTIONAL RESEARCH, UNIVERSITY OF OTTAWA.

* YEAR USED FOR MINIMUM PROJECTION
** YEAR USED FOR MAXIMUM PROJECTION

TABLE 12

POLYNOMIAL MODEL PROJECTIONS OF ENROLLMENT 1987-2000

YEAR	HISTORICAL DATA FROM RECORDS	PROJECTED DATA		
		MINIMUM	MEAN	MAXIMUM
1981	839			
1982	824			
1983	901			
1984	914			
1985	952			
1986	887			
1987		888.0	950.0	973.0
1988		907.0	968.0	998.8
1989		926.0	986.0	1024.3
1990		945.0	1004.0	1049.8
1991		964.0	1023.0	1075.3
1992		983.0	1041.0	1100.8
1993		1002.0	1059.0	1126.3
1994		1021.0	1077.0	1151.8
1995		1040.0	1095.0	1177.3
1996		1059.0	1114.0	1202.8
1997		1078.0	1132.0	1228.3
1998		1097.0	1150.0	1253.8
1999		1116.0	1168.0	1279.3
2000		1135.0	1187.0	1304.8

TABLE 13

RATIO OF NON-TRADITIONAL STUDENTS TO POPULATION OVER 25 YEARS OF AGE

YEAR	POPULATION 25 YEARS & OLDER[1] [A]	RATIO OF [B] : [A]	ACTUAL NUMBER OF NTSs[2] [B]
1981*	14201.6	0.0548	778
1982*	14551.4	0.0522	760
1983**	14859.9	0.0559	830
1984**	15212.6	0.0560	852
1985**	15536.8	0.0578	898
1986*	15866.4	0.0521	826

* RATIO FOR YEAR USED IN CALCULATION OF MINIMUM PROJECTIONS

** RATIO FOR YEAR USED IN CALCULATION OF MAXIMUM PROJECTIONS

1 CANADIAN POPULATION IN 1000S (SOURCE: STATISTICS CANADA, 1985)

2 NON-TRADITIONAL STUDENTS LESS THAN 25 YEARS (7.02% MEAN/YEAR) DELETED

TABLE 14

RATIO PROJECTIONS OF ENROLLMENT 1987-2000

YEAR	POPULATION 25 YEARS & OLDER[1]	RATIO FOR 1981-1986 MIN.[2]	MEAN	MAX.[3]	PROJECTED NTSs MIN.[4]	MEAN[4]	MAX.[4]
1987	16207.6	0.0530	0.0548	0.0566	859.0	888.2	915.7
1988	16541.8	"	"	"	876.7	906.5	936.3
1989	16870.1	"	"	"	894.1	924.5	954.8
1990	17182.4	"	"	"	910.6	941.6	972.5
1991	17456.2	"	"	"	925.1	956.6	988.0
1992	17696.6	"	"	"	937.9	969.8	1001.6
1993	17920.8	"	"	"	949.8	982.1	1014.3
1994	18138.0	"	"	"	961.3	994.0	1026.6
1995	18359.4	"	"	"	973.0	1006.1	1039.1
1996	18578.3	"	"	"	984.6	1018.1	1051.5
1997	18773.7	"	"	"	995.0	1028.8	1062.6
1998	18918.2	"	"	"	1002.7	1036.7	1070.7
1999	19120.3	"	"	"	1013.4	1047.8	1082.2
2000	19293.1	"	"	"	1022.5	1057.3	1092.0

[1] CANADIAN POPULATION IN 1000S (SOURCE: STATISTICS CANADA, 1985)

[2] MEAN RATIO OF THREE LOWEST YEARS - 1981, 1982, 1986

[3] MEAN RATIO OF THREE HIGHEST YEARS - 1983, 1984, 1985

[4] NON-TRADITIONAL STUDENTS LESS THAN 25 YEARS (7.02% MEAN/YEAR) DELETED

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